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HALLUCINATION, AND ITS ALLIED STATES.

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*Reprint from Transactions of the Medical and Chirurgical Faculty
of Maryland, April 27, 1888.*



BALTIMORE:
PRESS OF ISAAC FRIEDENWALD,
1888.

Report of the Section on Psychology and Medical Jurisprudence.

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Hallucination, and its allied states, may be either physiological or pathological.

Hallucinations are essentially subjective sense perceptions, originating in the respective sense ganglia, or the cortex (or fore-brain); thence projected to the peripheral terminus of the centrifugal (dirigomotor) nerve tract as a reality of consciousness. The special mental percept in consciousness may originate in the disturbed or irritated nerve ganglia (*de novo*), as much so as if the irritation, or disturbed molecular motion, had pursued its natural course from the periphery, and been received as an irritation of the centripetal (recipio-motor) terminus of the special nerve involved, either auditory, visual, or tactile. The special hallucination, whatever it may be, has all the force in consciousness as if the real words, or object, had had audible expression, or physical form, as an objective fact, to either the auditory or visual nerve terminus, and so with the other senses. Long habit has determined its terminal reference, so much so as that it requires an effort of judgment in the sane to define its subjective or objective origin, as will hereafter appear in the case of phantom sensation. The majority of hallucinations (if not all) originate in the central ganglion of the special sense irritated. Luys considers that the sense irritation is first received as a percept in the thalami; thence transmitted to the cortex. Baillarger also maintains that they may, and do sometimes, originate by irritation at the periphery or at any point along the tract of a sense nerve,



thence to the cortex. These he designates sensori-psychical, which he distinguishes from those of central origin, which latter he calls psycho-sensory. In either or both cases, however, the conscious interpretation remains the same. The first, or senso-psychical, is somewhat sustained by the well known fact of sensation in the fingers or toes of persons who have amputated arms or legs, which phenomenon is known as *phantom* fingers or toes. These phantom symptoms (hallucinations or illusions?) are interesting from the facts, viz. that as time increases from the date of the amputation, it is found that the unnatural distance of the phantom approaches the stump, until at last it establishes in consciousness its proper sense location at the point of amputation; and, second, that in doing so, from first to last, the conscious interpretation of its location is recognized as a delusion, and consequently the phenomenon becomes no longer an insane hallucination, neither a delusion, but a sane illusion of sense, or what is known as a physiological hallucination or illusion. Strictly considered, such peripheral sense irritations or impressions above referred to are not at all to be classed as hallucinations; partaking as they do, more of the nature of illusions of sense, since they have an objective basis of fact, and therefore more physiological than psychological, which latter more strictly implies subjective relations of consciousness. Hallucination of any one of the senses is not inconsistent with sanity—Martin Luther, Cowper, Charles Lamb, Sam Johnson, and Andral had them—yet in all cases the judgment, will, emotions and feelings are more or less affected at the time. The intellectual interpretation by these faculties of mind will alone determine the sanity or insanity of the subject. Hallucinations of the sane and insane are the same in type, the difference being the former interpret correctly the false sense perceptions, whilst the latter do not do so; it is only a difference of degree of intellectual co-ordination, not one of kind. Esquirol long ago (page 108) said, in writing of hallucinations, “the senses are not concerned in their production: they occur although the senses do not perform their functions, and even though they do not longer exist” (“Treatise on Insanity,” 1845). In this sentence we have a clear foreshowing of cerebral cortical localization, from clinical observations, long before Broadbent and Hughlings Jackson made like inductions from not dissimilar clinical observations concerning cortical epilepsy, whilst Ferrier confirmed and extended the results of Fritsch and Hitzig’s observations.

During the past year a case of a deaf-mute came under my observation with both imperfect auditory and visual hallucinations; together with both these there were *illusions* of both these senses, which illustrates the fact that the projection of the image or sound to the periphery is not essential in the final determination of the hallucination or illusion, but may be entirely confined to the cortical area of origin, imperfect as it is. I do not believe it possible for a deaf-mute (from birth) to be the subject of auditory hallucinations, no more so than that it is physiologically possible for one to have visual hallucinations who is blind from birth, or one to walk without limping who is born with congenital shortening of one leg. The sense perception has never been completely developed or educated, nor audible sound or visual sight registered in consciousness. The case referred to was an illustration of the physiological and psychological truth. In this case the audible sounds were blurred, indefinite, inaccurate. She could hear vibrations, enough to say that a "party was going on below stairs," and could *cortically* hear noises when there were none to be heard. When tested (at the piano) she could also hear confused sounds. The blind hallucinant (from birth) does likewise. Both hear and see imperfectly in sense definition, but as the cortical ganglia of these senses have been deficient from birth, their conscious interpretations must also be deficient, and will be found to be so when carefully examined. In some cases where total deafness has occurred in early childhood from scarlatina or other cause, true hallucinations may occur within the limit of previous ganglionic audible registration of sounds, and these more or less accurately described by the subsequent hallucinant; and so also with all the other senses. We have illustrations of these in the lives of eminent persons, and in none more so than in the person of that great musical prodigy and composer, Beethoven, who composed his greatest works after he was unable to hear the sound of a cannon.

Audible hallucinations are vastly more frequent than all others, and are estimated to be about two thirds of all the other senses. The next in frequency are sight, smell, and taste. Hallucinations are vastly more frequent at night than during the day. Why the auditory centre or tract should be the most frequent source of disease, than sight or other senses, is not known, but the statistical fact remains. My own unsupported belief is because I consider the auditory tract the most important avenue of sense knowledge, and consequently the severest taxed of all others (not excepting the

visual tract) from periphery to centre.* Not unfrequently hallucinations of hearing and sight are associated in the same person, and when this is the case, the former has the ascendancy in error of conscious interpretation, as well as command. Auditory hallucinations, of all others, appear to possess greater command over the actions of the hallucinant than those of other senses, and from this fact give rise to greater demonstration of action, in accordance with the special accompanying delusion created. Hence homicides more frequently occur in the person of the audible hallucinant than all others, even out of proportion to the greater frequency of the latter. They are therefore more dangerous persons than all other insane. Indeed, an auditory hallucination, however slight, is at all times a menace to the peace of society, and confinement is the only safety for persons or property. Hallucinations of sense must be carefully and positively differentiated from *delusions*, as well as *illusions*, although these are sometimes difficult to define and separate one from the other. Hallucinations are always delusions, but delusions are not necessarily hallucinations. There may be delusions of various kinds without hallucinations of any kind, but there cannot be hallucinations of any kind without delusions of some kind. This distinction will be readily recognized if we keep in mind the primary fact that hallucinations are false *sense* perceptions of central ganglionic sense origin, whilst delusions are errors of *relativity* of ideas in consciousness, and not necessarily or immediately connected with errors of sense perception. Delusions have a much wider field of creative imagination without a necessary sense text for its belief. The relation of these two may be much further defined if time permitted, showing the remote relation between delusion and past-registered sense impressions, from which ideas are more or less formed, and thus betray their connecting links of kinship.

We have numerous instances of incoherence of language, and ideas of a general or special character, without any special error of sense

* As Michea says, quoting Theophrastus and Plutarch, the hearing is that one of the senses through which the passions are most readily excited. It is through the hearing that the speech is perceived, without which intelligence would be greatly restricted—through which the memory and the imagination are so extensively supplied with food, and through which, from childhood to old age, the mind is stimulated by recitals calculated to stir the emotions to their utmost pitch. Undoubtedly the mind is more capable of being influenced through the hearing than through any other sense, by the continued repetition of sensorial excitation.

perception. Whilst the patient talks folly, his sense perceptions may be perfectly good in all respects. He knows a dog or cat, or other object or sound, when he sees or hears it. But, on the other hand, his sense perceptions cannot be in error without a delusion as a consequence; so that we are confronted with the common fact that all primary knowledge is gained by sense perception. This induction is to some extent misleading, and not borne out altogether by psychology. A further discussion of this point is impossible at present.

In the majority of cases the hallucination partakes of the natural temperament and education (both emotional and intellectual), either religious or otherwise, and generally betrays the natural character. Hallucinations of hearing and sight sometimes occur in the same person, but when this is the case they usually alternate with each other in their effects on consciousness, each in turn absorbing the fixed attention of the subject to the exclusion of the other, yet in quick succession oftentimes, or displacing one another at longer or shorter intervals. I have never known these two (hearing and sight) hallucinations combine in harmony to create a single and coherent conscious perception unless they formed the basis facts of a delusion, or better still, the delusion itself was the primary actor and the sense hallucinations the consequent.

Hallucinations of long duration usually degenerate into systematized delusions of fear and suspicion, and the subjects are more or less homicidal. Hallucinations of hearing show more plainly than all others insane the peculiar insane expression in the eye, and facial angles of emotional excitement and feeling, except perhaps the suicide. Audible hallucinants, especially of the insane, are in the majority of cases accompanied with a tuberculous history, and in equal proportions die of pthisis pulmonalis. Hallucination and active ideational delusions are very often associated in cases of acute melancholia and mania, and it is often difficult to define and isolate each and further define the ascendancy of one over the other.

Hallucinations, when they are the primary and initial source of mental unsoundness, may be said to be incurable, and are always progressive, ultimately involving the entire intellectual fabric. It is remarkable that auditory hallucinations, of all others, partake in the vast majority of cases of profanity, obscenity, and violence of thought and action. It is especially worthy of note, and still more so why it should be more pronounced and frequent than all others. In the most chaste ladies, and morally correct of the male sex, auditory hal-

lucinations suggest to the subject the most unhappy images as realities and substantial fact, beyond the power of correction of the unhappy victim. The most vulgar language of the brothel is more common than the current thoughts and speech of their pure sane lives, and more frequent in females than the male sex. Why this should be so it is difficult to explain. I have my own theory concerning it, which the limits of this paper forbid me to express.

No form of insanity has so important a relation to medico-legal jurisprudence as hallucination, both in its homicidal and testamentary relations to society. Especially is this the case for the reason that it often occurs that the hallucinant is capable of conducting his business affairs with perfect propriety, and even cleverness, in all its relations, conversing on all topics of the day, both political and commercial, with remarkable clearness, and the next moment hears a voice defaming his character and accusing him of dishonorable acts which render his self-control beyond the limit of propriety. Our courts of law for a hundred years or more record such cases with different verdicts—I am sorry to say, based upon sadly defective and conflicting medical testimony.

It is observable in some cases that the hallucinant carries on audible self-conversation, replying in two or more different voices that have spoken in tones differing very much in degree of kindness, or threats or commands, as it may be.

In but few exceptional cases are auditory hallucinants able to recognize any one distinct familiar voice speaking to them, but describe them vaguely, as if they were familiar but not so definitely recognized as to be able to call the name of the person last heard. Yet they can at once detect any one attempting to deceive them by replying to their questions. This is a difference of the central and peripheral origin of the sound which they at once recognize. This audible conversation indicates images of past registration of events, in some cases, whilst in others they are new creations, altogether different; and incoherent images, such as dreams, present to the sleeper fragments of sense perceptions and ideational delusions interwoven in a confused verbiage. Is it not in accord with the physiology of the nervous system as well as the phenomenon itself? No tissue in nature is so susceptible of all shades of impressions as nervous matter; not even light itself draws finer images upon sensitive plates; nor does it last in succeeding generations. It is this peculiarly endowed matter that receives and preserves all knowledge

(in proportion to its special quality) of impressions that impinge upon its delicate terminal structure, whenever formed, conveying it to its still more highly sensitive photographic plate, the ganglionic cerebral centre of registration, in which is stored up years of past experiences, not only of the individual, but also blurred images of ancestral generation occur. These have bequeathed to us that dim heritage which we have unconsciously acquired (for good or evil) as the sins of our forefathers, with perhaps a plus sign of recent addition to the original legacy; and thus it is we hear patients tell us of their horrible dreams, and obscene converse with the voices which, taking possession of their delusions through the auditory tract, pollute the stream of language beyond the power of self-control. It is especially true of the female hallucinant (as I have said), more so than of the male. All asylum experience verifies the truth asserted. It seems as if the intellectual guide which before controlled the judgment and will, was lost, and the riot of emotions dominating expressed itself in the worst terms which words could possibly supply—brothel language from the lips of chaste women. It is not possible that the intellect could create (*de novo*) such language, any more so than it could express itself in Hebrew, Sanscrit, or other unknown tongue. There can be but one solution: the revival of sounds audibly received on the sensitive plate of registration ganglia in some incidental way not then observed, but registered nevertheless, and brought to view by unusual excitement, or peculiar irritation of its auditory centre. This is borne out by the remarkable case of the servant girl who attended in the family of the German divine who, in his studies of dead languages, talked them aloud in his study. The girl subsequently having an attack of acute mania, repeated the same language verbatim without knowing a word of their meaning.

I have repeatedly had patients tell me after their recovery that they knew at the time what they were saying, but could not help it; yet I have never had one tell me when and where they ever heard such language which they had used, nor could they do so. Nor can the vast majority of somnambules or hypnoles remember their acts after waking from their abstraction.

Asylum experience teaches that the male hallucinant in the majority of cases does not indulge his vulgar language to the same degree as the other sex, but is more likely to indulge in acts of violence, assaults and homicides; the one illustrates the free use of

the tongue as a weapon, in contrast with the other more accustomed to stronger arguments. In both sexes the hallucinant is at the mercy and command of false perceptions, having all the force of conscious realities as much so as if they were the dreams of a slumber—in the sane lasting for a brief period before correction, whilst in the insane a lifetime nightmare perhaps never corrected.

The great variety and character of hallucinations occurring in the insane, as well as sane, are as numerous as the different life experience of the person. Hallucinations occurring from toxic influence, especially alcohol and hashish, are peculiar in themselves and easily differentiated from those of ganglionic cerebral origin. Hallucination and illusions of sense are sometimes so interwoven as that it is difficult to separate them, so that some authors consider that the definition lines cannot be drawn between them. Hallucinations are also the offspring of ideational delusion, each contributing to the other in consciousness (subjective representativeness creating subjective presentativeness); in other words, ideas suggesting sense perceptions, and *vice versa*, which are frequently observable in dreams, somnambulism, and hypnotism.

Dreams partake most often, primarily, of hallucinations and illusions which form the foundations of ideational delusions, or the ideational delusion may initiate either or both the other two. Shakespeare's dream of Clarence illustrates the alternate command of the dreamer by delusion and hallucination separately and combined in the person of Clarence. Dreams illustrate very forcibly to the sane mind (after waking) the nature of *insane* hallucinations, illusions, and delusions. Their kinship is clearly allied—certainly so, for the time being, in their mental phenomena, whilst somnambulism and hypnotism are not far remote in line of kinship, one perhaps more than the other, but each and all of them are more or less degrees of neurotic automatic activity.

Dreams, hallucinations, illusions, somnambulism, and hypnotism all have the force of insane action as long as they last. Each with their accompanying delusion, if enacted in daily life as they occur in the *ego*, would destroy happiness for life. The waking state corrects the errors of automatic cell-action in the dreamer, but not so with the insane hallucinant; this is the only difference, which illustrates their brotherhood in mental phenomena at least. In dreams we commit acts of violence, acts of immorality, even homicides, without just cause, and without remorse or the feeling of wrongdoing, as

much so as the insane. Nor does any one of such acts disturb the dreamer's peace of mind any more frequently than that of the insane. The inconsistencies of dreams are allied to the delusions of the insane. Their rapidity of changes from one subject to another in quick succession, also the broken fragments of thoughts and acts which join themselves together, present an allied picture of the incoherence of audible speech and muscular action of the insane, and show a composite photograph of all the other members of the group. The vividness of dreams, and their force in control of the intellectual and moral judgment, may be best illustrated by calling attention to the fact that no power of will, emotion, or passion in waking hours can cause a seminal emission. Yet in dreams this is a nightly occurrence, connected often with visual hallucinations of actual sexual contact. The power of nervous, emotional, and passionate concentration in this act has its absorbing subjective or objective foundation, as much so as the hallucinant or the somnambule who performs muscular feats under the absorbing attention of mental fixation and concentration which in waking states he would be powerless to execute. So also the hypnotic state can be similarly induced (mechanically), in which state acts of all kinds, from the grotesque to the sacred, are done under the influence of objective suggestion creating subjective states in susceptible subjects. The dreamer, hallucinant, illusionist, somnambule, and hypnote are chiefly, if not entirely, *multiplied states* (respectively) of *nervous concentration*, however induced (presentative and representative), which in minor degree are observed in everyday experience of life, that are formulated in legal terms of "undue influence" or "undue persuasion," both of which latter states have a standing in law especially connected with testamentary capacity.

In connection with the subject of hallucination and its allied states in sane and insane life, which the limits of this paper allow only time to refer to as subjects of discussion, I call attention to a not very distant but more obscure relation of the family group which has attracted my attention from early youth. It is *audible self-conversation*. When a youth my attention was mysteriously attracted by the negro race (especially the old), to the audible self-conversation which they frequently carried on with themselves, often gesticulating with hands, arms, and various facial muscles, thereby expressing the thoughts which occupied their minds. I well remember watching them along their pathway to hear what was said, with a boyish fear, as I had been told by all negro "uncles and aunts"

that such people "talked to the devil." I was consequently the more curious to hear the conversation. A Southern youth, brought up with negroes, becomes more or less imbued with their peculiar legends and weird goblin stories. Later in life I observed that ignorant and uneducated white people also talked to themselves, expressing their thoughts not only audibly, but also by gesture-language in mid-air, on the country roads, walking or riding, as it may have been. Still later it was observable that many educated persons held audible self-conversation with themselves,* whilst many more read aloud and discussed audibly the subject of their reading. I shall never forget as a boy to have travelled with a distinguished lawyer of the Circuit Court in a buggy a distance of fifteen miles to an adjoining county court, then in session, and where an important case was to be tried. *En route* the lawyer alarmed me by his frequent outbursts of audible speech accompanied with vehement gesture, so much so that I was greatly relieved when I was released from the contact. All the way along the road the "conversation with the devil" was an indefinite idea in my fears, which made me restless as to the possibility of its realization—such was the force and frequency of vociferous speech and gesture, connected as it was with my credulous belief as to the reality of the negro legend. Still later in life, and with these childish impressions remnant in my mind, I recall the fact that I, as well as other boys, used to study our lessons best by reading aloud or whispering them to ourselves. Was it done the better to understand their meaning, and the better to impress the task on memory, by calling to its aid *two* senses instead of one, the auditory as well as visual sense? Not until later manhood had these reminiscences of earlier life begun to crystallize into interrogatories. The crude facts had clung to my recollection, and every now and then the question recurred for some kind of solution. Meantime, the great frequency of audible self-conversation in the insane joined itself as an allied part of the whole question involved. There can be no sharp and definite line between sane and insane life; these merge into one another, as all nature passes imperceptible boundaries. Physiology and pathology lie alongside each other, and interweave the same fabric of organized animal and vegetable life.

Audible self-conversation, like other members of the family group

* An insane patient who was much given to audible self-conversation was asked why he did so. His reply was, "I enjoy hearing an intelligent man talk, and also enjoy talking to an intelligent man."

briefly referred to, seems to me to partake in no small degree of the family portraits of its allies, notwithstanding its humble position in the clinical scale. Indeed, has it not the same essential origin physiologically and psychologically, viz., concentration of perception, ideational and emotional activity unconsciously emerging into audible speech and gesture language, either psycho-sensory or senso-psychical concentration, and representative thought and action however induced?

By "presentative" I mean sense perception; by "representative" I refer to the psychological formula (in part) of memory of past co-ordinated sense perception recalled to consciousness, by means of which relativity of ideas, of feelings and emotions are co-ordinated in the sane mind, whilst blurred images of these are formed in the insane mind, creating inco-ordinate relativity of feelings, emotions and actions.

How does audible self-conversation become even a remote cousin of the foregoing group, which includes hallucinations, illusions, dreams, somnambulism, hypnotism? I can only trace the indefinite, indistinct, nosological kinship (if not attenuated consanguinity) by making other interrogatories. Why does the audible self-conversationalist converse to himself on subjects which are concentrated in the mind of the subject? Is it reverie, abstraction, or concentration of ideational automatic activity projected unconsciously outward by excessive cerebral action? Why does the insane hallucinant do likewise and answer audibly the subjective creations of the mind? Why does the somnambule enact in fine muscular co-ordination the extreme tension of his concentrated ideas, or why does the hypnotic subject obey the suggestions of his object master? Why does the dreamer hold audible self-conversation, and still further merging into the somnambule, *enact* his ideal representations? Abercrombie, Carpenter, and J. S. Mill give pictures of these states which overlap one another. The deductions from the foregoing interrogatories formulate themselves in but one response, viz., each and all of the group mentioned are essentially *concentrated ideas*, sane or insane, projected from the fore-brain into audible speech, gesture language, or emotional action. Hallucinations and illusions express themselves in audible language. Dreamers express themselves in what are called "nightmares," major or minor. Somnambulism expresses itself in *fine muscular co-ordinate tension*, adjustable to the act as the cultivated trapeze to the delicate rope (the material idea as one and

the same in co-ordinate adjustment). Hypnotism, in obedience to its objective master, supplements action to subjective thought. Audible self-conversation puts concentrated thought in audible language, supplementing gesture the better to express its subjective state of ideational activity. The lawyer above referred to spoke aloud and gesticulated in obedience to the force and inherent energy of his ideas, unconscious of what he was saying or doing, so far as his surroundings were concerned. Do not the other members of the family group do likewise? The hallucinant, dreamer, somnambulist, hypnote, if awakened to their better judgment, would they not be surprised at themselves? And so, too, does not the audible self-conversationalist stop at the sight of a stranger to his thoughts and actions? We find audible self-conversation occurring wherever we find the mind operating in intensity and concentration of action on the mind of the subject, and so it is with the other members of the family group referred to.

It is commonly thought and said that reading and talking aloud is an evidence of the ignorance of the person. This is only true in a qualified sense, and refers the subject to more careful consideration. We have seen that the distinguished lawyer as well as the ignorant negro both held audible self-conversations with themselves. Why? The answer is plain: each expressed in audible speech and gesture language, the *intense concentration* and fixation of their ideational (automatic) cerebral cell activity, more or less unconsciously. If we pursue the subject further we must unavoidably be led to consider the subject of "unconscious cerebration." The poor uneducated and unlettered negro talks to himself alone, for the reason (not alone) that he is both lecturer and audience. His auditory tract brings to him more durable facts, and *louder*, so that he understands them better by hearing them, although it comes from his own creative fancy. The educated insane hallucinant does likewise. We have a sane parallel in the lawyer above quoted. Who does not talk to himself audibly, in *proportion* to the *intensity* and *concentration* of his *brain activity*? Not alone to impress memory, but involuntarily, automatically, imperatively. *Intensity of subjective concentration* as well as *sense perception*, almost if not unconsciously give demonstration in articulate language and muscular gesture. Speech embodies it imperfectly, whilst feelings and emotions are so far beyond articulate language that *muscular activity* represents both in expression. The *emotions, feelings, and passions borrow the language*

of erudition, too deep and too remote in ancestry for verbal expression; yet they discharge their meaning in peculiar co-ordinate muscular action, beginning with those of least resistance, the small muscles of the face, and progressing gradually until those of greatest magnitude are involved in active motion.

The feelings and emotions are so far beyond articulate language that muscular activity alone represents them in expression; hence it is that the countenance often tells us more than words that deceive. The language of the emotions is best described by Herbert Spencer, and before him, by Lavater and Darwin.

